

CLAIMS

1. A chemically amplified resist material comprising a base resin and a photo acid generator having sensitivity at the wavelength of patterning exposure;
5 wherein, the chemically amplified resist material further comprising an activator that generates an acid or a radical by a treatment other than the patterning exposure.

2. The chemically amplified resist material
10 according to claim 1, wherein the activator generates an acid or a radical as a result of being decomposed by heat.

3. The chemically amplified resist material
15 according to claim 1, wherein the activator generates an acid or a radical as a result of being decomposed by heating at a temperature equal to or below the baking temperature at which a resist film is formed from a coated film of the resist material.

4. The chemically amplified resist material
20 according to claim 2, wherein the temperature at which the activator decomposes is 70-180°C.

5. The chemically amplified resist material
according to claim 3, wherein the temperature at which the activator decomposes is 70-180°C.

25 6. The chemically amplified resist material according to claim 1, wherein the activator is at least one type of thermal acid generator selected from the group consisting of aliphatic sulfonic acids, aliphatic sulfonates, aliphatic carboxylic acids, aliphatic
30 carboxylates, aromatic sulfonic acids, aromatic sulfonates, aromatic carboxylic acids, aromatic carboxylates, metal salts, phosphate esters and acid-breeding agents.

7. The chemically amplified resist material
35 according to claim 1, wherein the activator is at least one type of radical generator selected from the group consisting of peroxides and azo compounds.

8. The chemically amplified resist material according to claim 1, wherein the activator generates an acid or a radical by exposure at a wavelength at which the photo acid generator is not sensitive.

5 9. The chemically amplified resist material according to claim 1, wherein the number of molecules of acid or radical generated as a result of decomposition of the activator is no more than one-fifth the number of molecules of acid generated as a result of decomposition
10 of the photo acid generator.

10. The chemically amplified resist material according to claim 1, which is used for patterning a film or layer formed from a material containing basic species.

15 11. The chemically amplified resist material according to claim 10, wherein the material containing basic species is SiN, SiON, TiN, BPSG, BSG or PSG.

20 12. A patterning method in which a resist pattern is transferred to an underlying film or layer by photolithography followed by patterning of the film or layer, comprising the formation of the resist pattern by a step in which a resist film is formed from the chemically amplified resist material according to claim 1 on a substrate provided with the film or layer to be patterned on its surface, a step in which treatment is
25 performed in which an acid or a radical is generated from an activator in the resist film, a step in which the resist film is exposed in a predetermined pattern, and a step in which the exposed resist film is baked and developed to form a resist pattern.

30 13. The patterning method according to claim 12, wherein a substance that generates an acid or a radical as a result of being decomposed by heat is used for the activator.

35 14. The patterning method according to claim 12, wherein a substance that generates an acid or a radical as a result of being decomposed by heating at a temperature equal to or below the baking temperature at

which a resist film is formed from a coated film of the resist material is used for the activator.

5 15. The patterning method according to claim 13, wherein the temperature at which the activator decomposes is 70-180°C.

 16. The patterning method according to claim 14, wherein the temperature at which the activator decomposes is 70-180°C.

10 17. The patterning method according to claim 12, wherein the activator is at least one type of thermal acid generator selected from the group consisting of aliphatic sulfonic acids, aliphatic sulfonates, aliphatic carboxylic acids, aliphatic carboxylates, aromatic sulfonic acids, aromatic sulfonates, aromatic carboxylic
15 acids, aromatic carboxylates, metal salts, phosphate esters and acid-breeding agents.

 18. The patterning method according to claim 12, wherein the activator is at least one type of radical generator selected from the group consisting of peroxides
20 and azo compounds.

 19. The patterning method according to claim 12, wherein treatment of the activator is carried out by heating to perform baking treatment when forming the resist film.

25 20. The patterning method according to claim 12, wherein a substance that generates an acid or a radical by exposure at a wavelength at which the photo acid generator is not sensitive is used for the activator.

30 21. The patterning method according to claim 20, wherein following the resist film formation step, the entire surface of the resist film is exposed at a wavelength at which the photo acid generator is not sensitive.

35 22. The patterning method according to claims 12, wherein the underlying film or layer to be patterned is formed from a material containing basic species.

 23. The patterning method according to claim 20,

wherein the material containing basic species is SiN,
SiON, TiN, BPSG, BSG or PSG.